DELAWARE, NEW JERSEY, PENNSYLVANIA ENVIRONMENTAL SENSITIVITY INDEX METADATA

December 1996

National Oceanic and Atmospheric Administration
Hazardous Materials Response and Assessment Division
7600 Sand Point Way, Northeast
Seattle, Washington 98115

FILE DESCRIBES: Digital data for 1996 Delaware, New Jersey, Pennsylvania Environmental Sensitivity Index. Data were compiled and digitized at Research Planning, Inc., Columbia, South Carolina.

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COMMENTS: Information was developed using the U.S. Federal Geographic Data Committee's Content Standards for Digital Geospatial Metadata, June 8, 1994. The numbering scheme matches the Metadata Standard in order to facilitate referencing definitions of the elements. The items in **bold** are required elements and the others are optional elements. The Spatial Data Transfer Standard (SDTS), ver. 03/92, was referenced to properly identify the geographic entities.

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1.0. IDENTIFICATION INFORMATION

1.1. CITATION

1.1.1. ORIGINATOR:

National Oceanic and Atmospheric Administration (NOAA), Office of Ocean Resources Conservation and Assessment, Seattle, Washington 98115; and Research Planning, Inc., 1200 Park Street, Post Office Box 328, Columbia, South Carolina 29202

1.1.2. PUBLICATION DATE:

199608

1.1.4. TITLE:

Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Delaware, New Jersey, Pennsylvania

1.1.5. EDITION:

First

1.1.6. GEOSPATIAL DATA PRESENTATION FORM:

Atlas

1.1.7. SERIES INFORMATION

1.1.7.1. SERIES NAME:

None

1.1.7.2. ISSUE IDENTIFICATION:

Delaware, New Jersey, Pennsylvania

1.1.8. PUBLICATION INFORMATION

1.1.8.1. PUBLICATION PLACE:

Seattle, Washington

1.1.8.2. PUBLISHER:

NOAA, Office of Ocean Resources Conservation and Assessment

1.1.9. OTHER CITATION DETAILS:

Prepared by Research Planning, Inc., Columbia, South Carolina for the Hazardous Materials Response and Assessment Division, National Oceanic and Atmospheric Administration, Seattle, Washington

1.1.11. LARGER WORK CITATION:

None

1.2. DESCRIPTION

1.2.1. ABSTRACT:

This data set comprises the Environmental Sensitivity Index (ESI) maps for the shorelines of Delaware, Delaware Bay, Delaware River, and New Jersey. ESI data characterize coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats; sensitive biological resources; and human-use resources

1.2.2. PURPOSE:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources

1.3. TIME PERIOD OF CONTENT

1.3.1. TIME PERIOD INFORMATION

1.3.1.3. RANGE OF DATES/TIMES:

The intertidal habitats were mapped during overflights conducted 10-17 April 1995. The biological and human-use resources data were compiled by regional biologists in 1995. The dates for these data vary and are documented in Section 2.5.1

1.4. STATUS

1.4.1. PROGRESS:

Complete

1.4.2. MAINTENANCE AND UPDATE FREQUENCY:

None planned

1.5. SPATIAL DOMAIN

1.5.1. BOUNDING COORDINATES

1.5.1.1. WEST BOUNDING COORDINATE:

-75.75°

1.5.1.2. EAST BOUNDING COORDINATE:

-74°

1.5.1.3. NORTH BOUNDING COORDINATE:

40.25°

1.5.1.4. SOUTH BOUNDING COORDINATE:

38.375°

1.6 KEYWORDS

1.6.1. THEME

1.6.1.1. THEME KEYWORD THESAURUS:

None

1.6.1.2. THEME KEYWORD:

Sensitivity maps; ESI; coastal resources; oil spill planning; and coastal zone management

1.6.2. PLACE

1.6.2.1. THESAURUS:

None

1.6.2.2. PLACE KEYWORD:

Maryland/Delaware border to Mid-Barnegat Bay; including the Delaware River up to Trenton, New Jersey

1.7. ACCESS CONSTRAINTS:

None

1.8. USE CONSTRAINTS:

DO NOT USE ESI MAPS FOR NAVIGATIONAL PURPOSES. Acknowledgment of NOAA and other contributing sources listed in 1.11. (Data Set Credit) would be appreciated in products derived from these data

1.11. DATA SET CREDIT:

This project was supported by the National Oceanic and Atmospheric Administration's Hazardous Materials Response and Assessment Division. The U.S. Coast Guard provided helicopter support during the shoreline habitat mapping. Steve Meador, NOAA's Scientific Support Coordinator, assisted with project coordination and data collection from New Jersey and Delaware. Ben Anderson of the Delaware Department of Natural Resources and Environmental Control (DNREC) coordinated the data collection and reviews in Delaware.

Most of the data for Delaware was provided by DNREC. Biological and human-use data for Pennsylvania were collected from various sources by Steve Meador; New Jersey data were provided by the New Jersey Department of Environmental Protection and Engineering (DEPE), New Jersey Division of Fish, Game, and Wildlife, and New Jersey Office of Historic Protection. Digital shoreline data were provided by the Marine Spill Response Corporation (MSRC). The New Jersey DEPE provided digital data for numerous resources in New Jersey. Some digital data for fish and shellfish resources in Delaware Bay were provided by the U.S. Fish and Wildlife Service Delaware Bay Estuary Project. Digital waterfowl data for New Jersey were provided by the U.S. Fish and Wildlife Service New York Bight Project.

At Research Planning, Inc. (RPI), Joanne Halls and Mark White were project managers. Shoreline mapping was conducted by Todd M. Montello. Biological and human-use resources data were collected and compiled onto maps by Jeffrey Dahlin. Mark White, Lee Diveley, Kara Hastings, and Jim Olsen entered the data and produced the final maps. Systems administration was coordinated by Bill Holton. Graphics were provided by Joe Holmes and Becky Cox. Dot Zaino prepared the final text.

1.13. NATIVE DATA SET ENVIRONMENT:

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO (version 7.0.3) and ORACLE RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with unix operating system (HP-UX Release A.09.01). The following files are included in the data set: biores.e00, birds.e00, esi.e00, fish.e00, habitats.e00, hab_pt.e00, hydro.e00, index.e00, mgt.e00, m_mammal.e00, nests.e00, pnts_lut.e00, poly_lut.e00, reptiles.e00, seasonal.e00, shellfsh.e00, soc_data.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, and t_mammal.e00. The entire data set is approximately 50 megabytes.

2.0. DATA QUALITY INFORMATION

2.1. ATTRIBUTE ACCURACY

2.1.1. ATTRIBUTE ACCURACY REPORT:

The attribute accuracy is estimated to be "good" given the years of ESI experience, the data input methodology, the quality control review sessions, and the digital logical consistency checks.

2.2. LOGICAL CONSISTENCY REPORT:

The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. The first layer of information digitized is the ESI shoreline. Any errors in the shoreline classification are updated prior to digitization of the biological and socioeconomic layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The biological data are digitized, checked using both digital and on-screen procedures, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists review the entire series of maps, check all data, and make final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy.

To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs which test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE to ARC/INFO consistencies. A final review is made by the GIS manager, where data is written to tape and metadata is written.

2.3. COMPLETENESS REPORT:

Shoreline Habitat Mapping:

The shoreline habitats of Delaware, New Jersey, and Pennsylvania were characterized as to their sensitivity to oil spills using a shoreline classification system which has been used by NOAA for all ESI maps nationwide. Prediction of the behavior and persistence of oil on intertidal habitats is based

on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The vulnerability of a particular habitat is an integration of the following factors:

1) Shoreline type (substrate, grain size, tidal elevation, origin)
2) Exposure to wave and tidal energy
3) Biological productivity and sensitivity
4) Ease of cleanup

All of these factors are used to determine the relative sensitivity of intertidal habitats. Key to the sensitivity ranking is an understanding of the relationships between: physical processes, substrate, shoreline type, product type, fate and effect, and sediment transport patterns. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline.

These concepts have been used in the development of the ESI, which ranks shoreline environments as to their relative sensitivity to oil spills, potential biological injury, and ease of cleanup. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking.

Sensitive Biological Resources:

Regional biologists compiled the biological data. These data denote the key biological resources that are most likely at risk in the event of an oil spill. Seven major categories, or elements, of biological resources were considered during data compilation: birds, fish, habitats, marine mammals, reptiles, shellfish, and terrestrial mammals.

Each ELEMENT corresponds to a coverage or geographic theme. There are four attribute tables, BIORES, SEASONAL, SPECIES, and SOURCES, that are used to store the complex biological data (Fig. 1). Each biological polygon coverage (BIRDS, FISH, HABITATS, M_MAMMAL, REPTILES, SHELLFSH, and T_MAMMAL) is linked to the Biological Resources table (BIORES) using the lookup table POLY_LUT. The habitat points (HAB_PT) and bird nesting

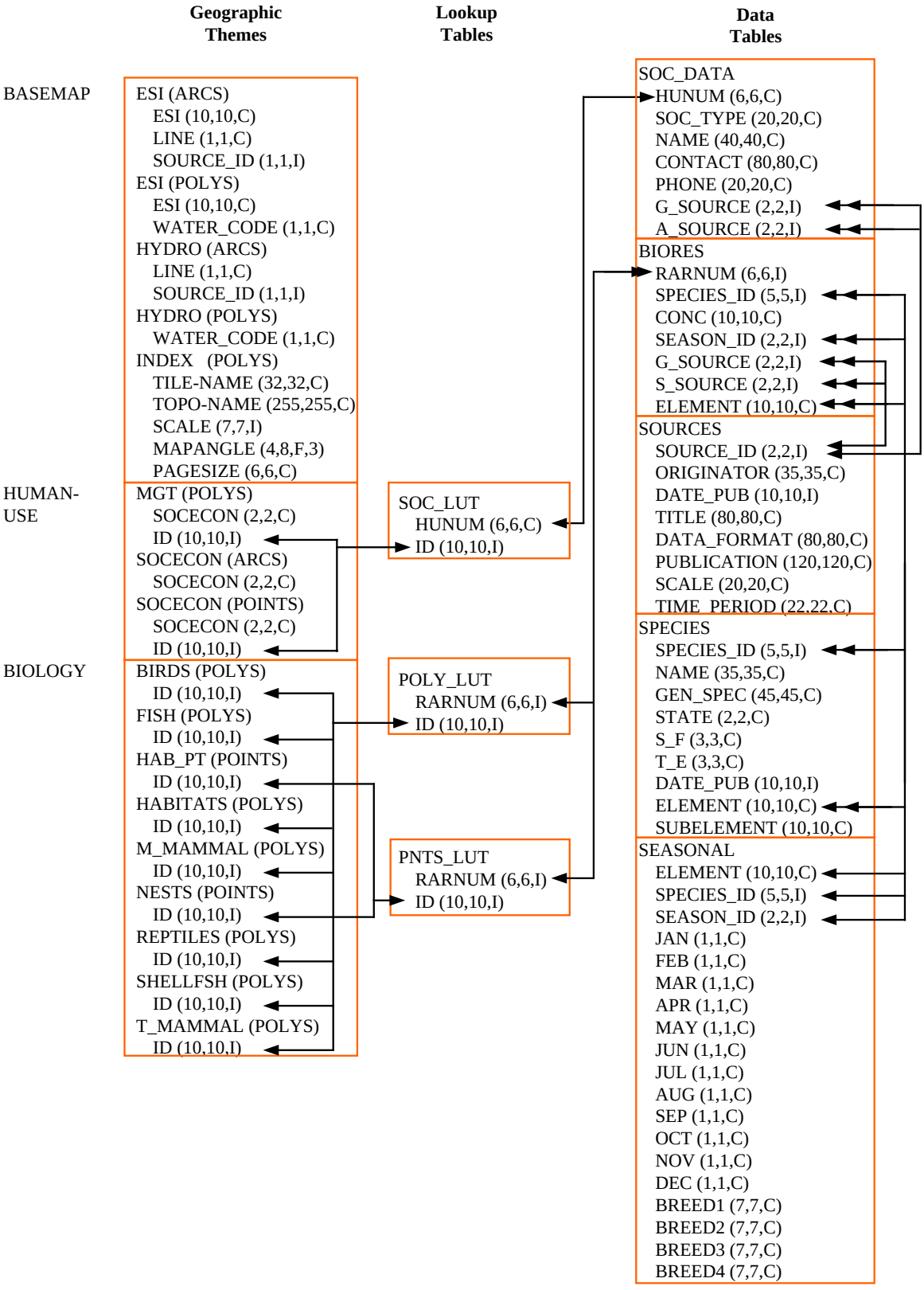

FIGURE 1. Relationships between coverages and attribute files.

sites (NESTS) are linked to the BIORES table using the lookup table PNTS_LUT. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be LOW, MEDIUM, HIGH, RARE, OCCASIONAL, or COMMON for all coverages except NESTS, which may have a value for the number of nesting sites, and BIRDS, which may have a number range for the number of individuals present. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The SEASONAL table stores the monthly presence of each species and the characteristics of the presence (life history information). The BIORES table is linked to the SEASONAL table using the SPECIES_ID, ELEMENT, and SEASON_ID items. The categories of the variables BREED1 through BREED4 for each ELEMENT are:

ELEMENT	BREED 1	BREED 2	BREED 3	BREED 4
BIRD	nesting	laying	hatching	fledging
FISH	spawning	outmigration	juvenile	
M_MAMMAL	mating	calving	pupping	molting
REPTILE	nesting	hatching		
SHELLFISH	spawning	larvae/ juvenile	mating	

NOTE: There are no BREED variables for HABITATS or T_MAMMALS.

The SPECIES table contains the species ID (SPECIES_ID), common name (NAME), the scientific name (GEN_SPEC), the two-letter state abbreviation for listed species (STATE), the state and federal status (S_F), the threatened and/or endangered status (T_E), the date of the list (DATE_PUB), the species element (ELEMENT), and the species sub-group (SUBELEMENT). The item SUBELEMENT refers to the grouping of the species. The SUBELEMENTS, by ELEMENT, included in this atlas are:

ELEMENT	SUBELEMENT
BIRD	diving
	gull_tern
	raptor
	shorebird
	wading
	waterfowl
FISH	anadromous
	special
HABITAT	sav
	shrub
MARINE MAMMAL	dolphin
	seal
	whale
REPTILE	turtle
SHELLFISH	cephalopod
	clam
	crab
	gastropod
	lobster
	oyster
TERRESTRIAL MAMMAL	mustelid
	rodent

The BIORES items G_SOURCE and S_SOURCE refer to the geographic and seasonality sources and link to the SOURCES table.

Human-Use Resources:

Several human-use, or socioeconomic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the coverage SOCECON and managed land polygonal data are stored in the MGT coverage. Both data sets are linked to the table SOC_DATA using the SOC_LUT and items HUNUM and ID. ID is a concatenation of atlas number (12), element number (SOCECON = 10 and MGT = 11), and unique record number.

ENTITY POINTS (.PAT)		COMPLETE CHAINS (.AAT)		POLYGONS (.PAT)	
Item	**Type**	**Item**	**Type**	**Item**	**Type**
SOCECON	C	SOCECON	C	SOCECON	C
ID	I			ID	I

All features are attributed using the item SOCECON and identify the type of feature:

Entity Points		**Polygons**	
Feature	**SOCECON**	**Feature**	**SOCECON**
Access	A2	State Park	P
Airport	A	Wildlife Refuge	WR
Archaeological	AS		
Boat Ramp	BR		
Coast Guard	CG		
Ferry	F		
Historical Site	HS		
Marina	M		
Recreational Fishing	RF		
Water Intake	WI		
Complete Chains			
Feature	**SOCECON**		
State Border	SB		

The table SOC_DATA contains the human-use number (HUNUM), the feature type (SOC_TYPE), the name of the facility (NAME), the contact person (CONTACT), the telephone number (PHONE), the geographic source (G_SOURCE), and the attribute source (A_SOURCE). The HUNUM value is distinguished from the biology RARNUM values by an "H" preceding the unique number.

2.4. POSITIONAL ACCURACY

2.4.1. HORIZONTAL POSITIONAL ACCURACY

2.4.1.1. HORIZONTAL POSITIONAL ACCURACY REPORT:

The ESI data uses USGS 1:24,000 topographic quadrangles as the base map. It is estimated that the ESI has a minimum mapping unit of 50 feet. The biological data sets are developed primarily using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature migrate across the landscape. Therefore, the 1:24,000 USGS quadrangles and 1:40,000 and 1:80,000 NOAA navigational charts are used as a base map in gathering the data but the data have "fuzzy" boundaries which must be understood when utilizing this information.

2.5. LINEAGE

2.5.1. SOURCE INFORMATION:

Coverage or theme name: BIRDS

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Russell, Keith	1995	Personal knowledge	Hardcopy maps	Dept. of Ornithology, PHI Academy of Natural Sciences	24000	1995
Santner, et. al.	1992	Annotated List of the Birds of Pennsylvania	Book	Pennsylvania Biological Survey, Contrib. No. 4	N/A	1992
Gelvin-Innvaer, Lisa	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995
Whittendale, Tom	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995
Smith, Frank	1995	Bombay Hook National Wildlife Refuge Survey	Hardcopy maps	Bombay Hook National Wildlife Refuge	80000 40000	1995
Breden, Tom	1995	New Jersey Scorecard Sites	Digital maps	New Jersey Division of Parks and Forestry	24000	1995
Castelli, Paul	1995	Midwinter Waterfowl Survey	Digital Map	New Jersey Division of Fish, Game, and Wildlife	100000	1973-1995
Harrison, Colin	1978	A Field Guide to the Nests, Eggs, and Nestlings of North American Birds	Book	Collins, New York, 416 pp.	N/A	N/A

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Bellrose, Frank	1980	Ducks, Geese, and Swans of North America	Book	Wildlife Management Institute, Washington, DC, 540 pp.	N/A	N/A

2.5.1. SOURCE INFORMATION:

Coverage or theme name: ESI

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Marine Spill Response Corporation	N/A	ESI Shoreline	Digital complex chains	N/A	24000	1994
Research Planning, Inc.	N/A	ESI Shoreline	Digital complex chains	N/A	24000	1994
Research Planning, Inc.	N/A	ESI Shoreline	Hardcopy maps from overflight	N/A	24000	1995
New Jersey Department of Environmental Protection	N/A	ESI Shoreline	Digital complex chains	N/A	24000	1994

2.5.1. SOURCE INFORMATION:

Coverage or theme name: FISH

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Kaufmann, Michael	1995	Personal knowledge	Hardcopy map	Pennsylvania Fish and Boat Commission	24000	1995

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Byrne, Don	1995	Generalized Information on Fish and Shellfish Distributions	Hardcopy maps	New Jersey Bureau of Marine Fisheries, Nacote Creek Research Center	24000	1970-1995
New Jersey Division of Fish, Game, and Shellfish	1978	Studies of the Mullica River-Great Bay Area	Report	Misc. Report No. 26M, Final Report for Project 3-78-R-Land 2	N/A	1969-1970
Stone et al.	1994	Distribution and Abundance of Fishes and Marine Invertebrates in Mid Atlantic Estuaries	Book	ELMR Rept. No. 12, NOAA/NOS Strategic Assessment Division	N/A	Unknown
New Jersey Division of Fish, Game, and Shellfish	1979	The Studies of the Back Bay Systems in the Atlantic Ocean	Report	New Jersey Bureau of Marine Fisheries, Nacote Creek Research Center, Report No. 47M	N/A	1977
Kennish, Michael and Richard Lutz	1984	Lecture Notes on Coastal and Estuarine Studies, Ecology of Barnegat Bay, New Jersey	Report	Springer-Verlag, New York	N/A	Unknown
Michels, Stew	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Breese, Greg	1995	Delaware Bay Estuary Project	Digital maps	U.S. Fish and Wildlife Service	100000 24000	1995
Long, Douglas and William Figley	1982	Studies of the Great Egg Harbor River and Bay	Report, hardcopy map	NJDEPE, Div. of Fish, Game, and Shell-fisheries, Tech. Series 82-1, Marine Fisheries Adm. CNY00	166667	Unknown
McClain, Jr., J.F.		Upper Barnegat Estuarine System	Report	New Jersey Bureau of Marine Fisheries, Nacote Creek Research Center	N/A	1971-1972

2.5.1. SOURCE INFORMATION:

Coverage or theme name: HABITATS

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Breden, Tom	1995	New Jersey Scorecard Sites	Digital maps	New Jersey Division of Parks and Forestry	24000	1995
Halavik, Tom	1994	New Jersey Shellfish and Eelgrass	Digital maps	U.S. Fish and Wildlife Service, SNE/NYB Coastal Ecosystem Program	17000 to 160000	1985-1989

2.5.1. SOURCE INFORMATION:

Coverage or theme name: HAB_PT

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Broaddaus, Lynn	1996	Natural Heritage Database	Data tables	Delaware Division of Fish and Wildlife	N/A	1995

2.5.1. SOURCE INFORMATION:

Coverage or theme name: HYDRO

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Marine Spill Response Corporation	N/A	ESI Shoreline	Digital complex chains	N/A	24000	1994
Research Planning, Inc.	N/A	ESI Shoreline	Digital complex chains	N/A	24000	1994
Research Planning, Inc.	N/A	ESI Shoreline	Hardcopy maps from overflight	N/A	24000	1995
New Jersey Department of Environmental Protection	N/A	ESI Shoreline	Digital complex chains	N/A	24000	1994

2.5.1. SOURCE INFORMATION:

Coverage or theme name: INDEX

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Research Planning, Inc.	1995	Index for Delaware, New Jersey, and Pennsylvania ESI maps	Digital complex chains	Bill Holton, GIS Analyst	24000	1995

2.5.1. SOURCE INFORMATION:

Coverage or theme name: MGT

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Thorton, Larry	1993	New Jersey Open Spaces Database	Digital maps	New Jersey Department of Environmental Protection and Energy, ORIM	24000	1972-1992
Breese, Greg	1995	Delaware Protected Lands	Digital map	U.S. Fish and Wildlife Service, Delaware Bay Estuary Program	24000	1994

2.5.1. SOURCE INFORMATION:

Coverage or theme name: M_MAMMAL

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Logothetis, Elaine	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995

2.5.1. SOURCE INFORMATION:

Coverage or theme name: NESTS

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Gelvin-Innvaer, Lisa	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995
Halavik, Tom	1990	Coastal Waterbird Colonies	Digital Tables	U.S. Fish and Wildlife Service, SNE/NYB Coastal Ecosystem Project	N/A	1989
Jenkins, Dave	1995	New Jersey Colonial Waterbirds	Digital maps	New Jersey Division of Fish, Game, and Wildlife	24000	1985-1989
Harrison, Colin	1978	A Field Guide to the Nests, Eggs, and Nestlings of North American Birds	Book	Collins, New York, 416 pp.	N/A	N/A

2.5.1. SOURCE INFORMATION:

Coverage or theme name: REPTILES

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denomi-nator	2.5.1.4 Source Time Period
Logothetis, Elaine	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995
Gelvin-Innvaer, Lisa	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995

2.5.1. SOURCE INFORMATION:

Coverage or theme name: SHELLFSH

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denomi-nator	2.5.1.4 Source Time Period
Byrne, Don	1995	Generalized Information on Fish and Shellfish Distributions	Hardcopy maps	New Jersey Bureau of Marine Fisheries, Nacote Creek Research Center	24000	1970-1995
Stone et.al	1994	Distribution and Abundance of Fishes and Marine Invertebrates in Mid Atlantic Estuaries	Book	ELMR Rept. No. 12, NOAA/NOS Strategic Assessment Division	N/A	Unknown
New Jersey Division of Fish, Game, and Shellfish	1978	Studies of the Mullica River-Great Bay Area	Report	Misc. Report No. 26M, Final Report for Project 3-78-R-Land 2	N/A	1969-1970

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
New Jersey Division of Fish, Game, and Shellfish	1979	The Studies of the Back Bay Systems in the Atlantic Ocean	Report	New Jersey Bureau of Marine Fisheries, Nacote Creek Research Center, Report No. 47M	N/A	1977
Kennish, Michael and Richard Lutz	1984	Lecture Notes on Coastal and Estuarine Studies, Ecology of Barnegat Bay, New Jersey	Report	Springer-Verlag, New York	N/A	Unknown
Long, Douglas and William Figley	1982	Studies of the Great Egg Harbor River and Bay	Report, hardcopy map	NJDEPE, Div. of Fish, Game and Shellfisheries Tech. Series 82-1, Marine Fisheries Adm. CNY00	166667	Unknown
McClain, Jr., J.F.		Upper Barnegat Estuarine System	Report	New Jersey Bureau of Marine Fisheries, Nacote Creek Research Center	N/A	1971-1972
Tinnsman, Jeff	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995
Breese, Greg	1995	Delaware Bay Estuary Project	Digital maps	U.S. Fish and Wildlife Service	100000 24000	1995
Halavik, Tom	1994	New Jersey Shellfish and Eelgrass	Digital maps	U.S. Fish and Wildlife Service, SNE/NYB Coastal Ecosystem Program	17000 to 160000	1985-1989

2.5.1. SOURCE INFORMATION:

Coverage or theme name: SOCECON

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denomi-nator	2.5.1.4 Source Time Period
Michels, Stew	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995
Thorton, Larry	1993	New Jersey Open Spaces Database	Digital maps	New Jersey Department of Environmental Protection and Energy, ORIM	24000	1972-1992
Clark, Cherie	1995	Delaware Coastal Site Inventory	Hardcopy map	Delaware Division of Parks and Recreation	24000	1995
Hummel, Tony	1995	Delaware Water Intakes and Public Boat Ramps	Hardcopy tables	Delaware Division of Air and Waste Management	N/A	1995
Pollack, Barry	1995	Pennsylvania Water Intakes, Boat Ramps, and Marinas	Hardcopy maps	Pennsylvania Fish and Boat Commission	24000	1995
Anderson, Ben	1996	Delaware Artificial Reefs	Hardcopy table	Delaware Department of Natural Resources and Environmental Control	N/A	1995
Carr, Kurt	1995	Pennsylvania Archeologi-cal Site Survey	Hardcopy maps	Pennsylvania Bureau for Historic Preservation	24000	1995
Gull, Jonathan	1995	New Jersey Archeologi-cal and Historical Sites	Hardcopy maps	New Jersey Office of Historic Protection	24000	1930-1995

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denomi-nator	2.5.1.4 Source Time Period
U.S. Geological Survey	1995	USGS 7.5 minute topographic quadrangle series	Hardcopy maps	U.S. Geological Service, Reston, Va.	24000	1956-1993

2.5.1. SOURCE INFORMATION:

Coverage or theme name: T_MAMMAL

2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denomi-nator	2.5.1.4 Source Time Period
Whittendale, Tom	1995	Personal knowledge	Hardcopy maps	Delaware Division of Fish and Wildlife	80000 40000	1995
Smith, Frank	1995	Bombay Hook National Wildlife Refuge Survey	Hardcopy maps	Bombay Hook National Wildlife Refuge	80000 40000	1995

2.5.2. PROCESS STEP

2.5.2.1. PROCESS DESCRIPTION:

The digitization of ESI, biological resources, and human-use resources is a complex and highly quality controlled process. In order to facilitate digitizing, the entire study area was split into individual quadrangles using a map index coverage. The first layer of information digitized was the ESI. A digital shoreline was obtained from MSRC and the New Jersey Department of Environmental Protection. Any errors in the shoreline classification were updated prior to digitization of the biological and human-use layers. All data use the shoreline as the geographic reference so that there are no

slivers in the geographic layers. The biological information was compiled onto 1:24,000 USGS topographic quadrangles, 1:40,000 NOAA Navigational Charts, or 1:80,000 NOAA Navigational Charts by an in-house biological expert using the data from regional specialists in the form of verbal discussions, maps, tables, charts, and written descriptions of wildlife distributions. The data were digitized, checked using both digital and on-screen procedures, plotted, and sent out for review by the regional specialists. The edited maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers which are described in this document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and reported to the GIS manager.

2.5.2.3. PROCESS DATE:
199608

2.5.2.6. PROCESS CONTACT

2.5.2.6.1. CONTACT PERSON PRIMARY

2.5.2.6.1.1. CONTACT PERSON:
Jill Petersen

2.5.2.6.1.2. CONTACT ORGANIZATION:
NOAA HMRAD

2.5.2.6.3. CONTACT POSITION:
GIS Manager

2.5.2.6.4. CONTACT ADDRESS

2.5.2.6.4.1. ADDRESS TYPE:
Physical Address

2.5.2.6.4.2. ADDRESS:
7600 Sand Point Way, N.E.
Bin C15700

2.5.2.6.4.3. CITY:
Seattle

2.5.2.6.4.4. STATE OR PROVINCE:

W A

2.5.2.6.4.5. POSTAL CODE:

98115

2.5.2.6.5. CONTACT VOICE TELEPHONE:

(206) 526-6944

2.5.2.6.7. CONTACT FACSIMILE TELEPHONE:

(206) 526-6329

2.5.2.6.8. CONTACT ELECTRONIC MAIL ADDRESS:

jill_petersen@hazmat.noaa.gov.us

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3.0. SPATIAL DATA ORGANIZATION INFORMATION

3.2. DIRECT SPATIAL REFERENCE METHOD:

Vector

3.3. POINT AND VECTOR OBJECT INFORMATION

3.3.1. SDTS TERMS DESCRIPTION:

3.3.1.1. SDTS POINT AND VECTOR OBJECT TYPE, and

3.3.1.2. POINT AND VECTOR OBJECT COUNT:

Theme	Universe Polygon	GT-Polygons	Area Points	Complete Chains	Line Segments	Label Points	Entity Points	Nodes
BIRDS	1	335	335	963	152,134			689
ESI	1	2,114	2,114	10,013	353,070			9,631
FISH	1	1,101	1,101	1,811	278,780			1,638
HAB_PT							15	
HABITATS	1	186	186	301	21,005			235
HYDRO	1	2,128	2,128	6,293	343,707	937		5,938
INDEX	1	64	64	178	178			115
MGT	1	463	463	520	63,602			501
M_MAMMAL	1	61	61	240	68,047			231
NESTS							201	
REPTILES	1	52	52	159	43,910			155
SHELLFSH	1	1,677	1,678	2,717	318,563			2,341
SOCECON				4	846		1,391	6
T_MAMMAL	1	20	20	96	28,182			84

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4.0. SPATIAL REFERENCE INFORMATION

4.1. HORIZONTAL COORDINATE SYSTEM DEFINITION

4.1.2. PLANAR

4.1.2.1. MAP PROJECTION

4.1.2.1.1. MAP PROJECTION NAME:

Universal Transverse Mercator

4.1.2.1.2. MAP PROJECTION PARAMETERS:

4.1.2.1.2.1. ZONE:

18

4.1.2.1.2.2. UNITS:

Meters

4.1.4. GEODETIC MODEL

4.1.4.1. HORIZONTAL DATUM NAME:

North American Datum of 1927

4.1.4.2. ELLIPSOID NAME:

Clark 1866

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5.0. ENTITY AND ATTRIBUTE INFORMATION

5.1. DETAILED DESCRIPTION: BIRDS

This coverage BIRDS contains the polygons with bird species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (1), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be LOW, MEDIUM, HIGH, or a numeric value representing the number of individuals. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following BIRDS species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
8	Double-crested cormorant
11	Whistling swan (tundra swan)
12	Canada goose
13	Brant
15	Snow goose
16	Mallard
17	Northern pintail
18	Green-winged teal
20	Northern shoveler
21	Canvasback
22	Greater scaup
23	Lesser scaup
24	Common goldeneye
26	Bufflehead
27	Oldsquaw
29	White-winged scoter
30	Surf scoter
32	Common merganser
34	American coot
38	Herring gull
40	Ring-billed gull
45	Common tern
54	Great blue heron
56	Spotted sandpiper
58	Greater yellowlegs
59	Lesser yellowlegs
62	Least sandpiper
76	Bald eagle
77	Osprey
86	Least tern
87	Little blue heron
88	Great egret
89	Snowy egret
90	Black-crowned night heron
91	Glossy ibis
92	Great black-backed gull
93	Cattle egret
94	Tricolored heron
95	Roseate tern
97	Green-backed heron
98	Laughing gull

SPECIES ID	NAME
103	Common eider
107	Peregrine falcon
118	Brown pelican
120	Yellow-crowned night heron
124	Redhead
133	Black skimmer
134	Gull-billed tern
138	Forster's tern
148	Ruddy duck
152	American oystercatcher
153	Piping plover
156	Semipalmated sandpiper
162	Gadwall
169	American wigeon
178	Least bittern
179	Pied-billed grebe
180	Ring-necked duck
181	Northern harrier
184	King rail
186	Black duck
187	Virginia rail
188	Sora rail
190	Blue-winged teal
191	Wood duck
192	Common moorhen
193	Black tern
198	Hooded merganser
214	Solitary sandpiper
217	Mute swan
275	Great cormorant
299	Scaup
300	Goldeneye
301	Merganser
302	Scoter
1,001	Gulls
1,002	Shorebirds
1,003	Waterfowl
1,004	Wading birds
1,008	Terns

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: ESI

The coverage ESI contains arc (Complete Chains) and polygonal (GT-Polygons) features for the ESI shoreline classification and is based on *Guidelines for Developing Digital Environmental Sensitivity Index Atlases and Data-bases* (Michel, J. and J. Dahlin, 1993, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed in April 1995.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
Complete Chain	ESI	character
	LINE	character
	SOURCE_ID	integer
GT-Polygons	ESI	character
	WATER_CODE	character

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ESI

5.1.2.2. ATTRIBUTE DEFINITION:

The item ESI contains values according to the ESI ranking of the shorelines and polygons. The ESI rankings progress from low to high susceptibility to oil spills. The Delaware, New Jersey, and Pennsylvania shoreline types are listed below. In many cases, the shorelines are also ranked with multiple codes such as 10/7. The first number is the most landward shoreline type, salt marsh, with exposed tidal flats being the shoreline type closest to the water.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
1B	Exposed Seawalls and Other Solid Structures Made of Concrete, Wood, or Metal

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
1B/4	Exposed Seawalls and Other Solid Structures Made of Concrete, Wood, or Metal/Medium- to Coarse-grained Sand Beaches
1B/5	Exposed Seawalls and Other Solid Structures Made of Concrete, Wood, or Metal/Mixed Sand and Gravel Beaches
1B/6A	Exposed Seawalls and Other Solid Structures Made of Concrete, Wood, or Metal/Gravel Beaches
1B/6B	Exposed Seawalls and Other Solid Structures Made of Concrete, Wood, or Metal/Riprap Structures
1B/10A	Exposed Seawalls and Other Solid Structures Made of Concrete, Wood, or Metal/Salt and Brackish-water Marshes
2A	Eroding Bluffs
2B	Wave-cut Clay Platforms
3	Fine-grained Sand Beaches
4	Medium- to Coarse-grained Sand Beaches
4/10A	Medium- to Coarse-grained Sand Beaches/Salt and Brackish-water Marshes
5	Mixed Sand and Gravel Beaches
5/10A	Mixed Sand and Gravel Beaches/Salt and Brackish-water Marshes
6A	Gravel Beaches
6B	Riprap Structures
6B/3	Riprap Structures/Fine-grained Sand Beaches
6B/4	Riprap Structures/Medium- to Coarse-grained Sand Beaches
6B/5	Riprap Structures/Mixed Sand and Gravel Beaches
6B/6A	Riprap Structures/Gravel Beaches
6B/8A	Riprap Structures/Riverine Banks with Grasses or Trees and Levees
6B/10A	Riprap Structures/Salt and Brackish-water Marshes
7	Exposed Tidal Flats
8A	Vegetated, Steeply Sloping Riverine Bluffs
8A/4	Vegetated, Steeply Sloping Riverine Bluffs/Medium- to Coarse-grained Sand Beaches
8A/5	Vegetated, Steeply Sloping Riverine Bluffs/Mixed Sand and Gravel Beaches

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
8A/6A	Vegetated, Steeply Sloping Riverine Bluffs/Gravel Beaches
8A/6B	Vegetated, Steeply Sloping Riverine Bluffs/Riprap Structures
8A/10A	Vegetated, Steeply Sloping Riverine Bluffs/Salt and Brackish-water Marshes
8B	Sheltered Seawalls and Other Solid Structures Made of Concrete, Wood, or Metal
9	Sheltered Tidal Flats
10A	Salt and Brackish-water Marshes
10A/3	Salt and Brackish-water Marshes/Fine-grained Sand Beaches
10A/4	Salt and Brackish-water Marshes/Medium- to Coarse-grained Sand Beaches
10A/5	Salt and Brackish-water Marshes/Mixed Sand and Gravel Beaches
10A/6A	Salt and Brackish-water Marshes/Gravel Beaches
10A/6B	Salt and Brackish-water Marshes/Riprap Structures
10A/9	Salt and Brackish-water Marshes/Sheltered Tidal Flats
U	Unranked

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

ordered

5.1.2.1. ATTRIBUTE LABEL:

LINE

5.1.2.2. ATTRIBUTE DEFINITION:

Type of geographic feature

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
B	Breakwater
F	Flat
H	Hydrography or stream features
P	Pier
S	Shoreline

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

SOURCE_ID

5.1.2.2. ATTRIBUTE DEFINITION:

Data source for the ESI

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
0	Digital MSRC Shoreline
1	Ground Truth/Field Edit
4	Digitize from Scanned Topo
6	Digital New Jersey Shoreline

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

WATER_CODE

5.1.2.2. ATTRIBUTE DEFINITION:

Specifies a polygon as either water or land

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
L	Land
W	Water

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

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5.1. DETAILED DESCRIPTION: FISH

The coverage FISH contains the polygons with fish species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (2), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be LOW, MEDIUM, or HIGH. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following FISH species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
65	Bluefish
85	Alewife

SPECIES ID	NAME
86	Blueback herring
87	American shad
88	Winter flounder
97	Tautog
101	Shortnose sturgeon
102	Atlantic sturgeon
104	Striped bass
108	Summer flounder
110	Black seabass
113	Bay anchovy
115	Atlantic menhaden
121	Spot
122	Black drum
123	Atlantic croaker
138	Seatrout (weakfish)
145	White perch
146	Atlantic herring
150	Porgy (scup)
152	Yellow perch
153	Northern kingfish
155	Squirrel (red) hake (ling)
179	Largemouth bass
201	Channel catfish

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: HABITATS

The coverage HABITATS contains the polygons with plant species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (3), and record number. ID values of zero are holes in polygons and do not contain information. In the look up table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be BLANK or SPARSE. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following HABITATS species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
33	Seaside crowfoot
108	Salt marsh bulrush

SPECIES ID	NAME
117	Water oak
145	Beach amaranth
150	Bur-marigold
151	Seaside alder
152	American cupscale
153	Awl-leaved rush
154	Barton's St. John's-wort
155	Black-based quillwort
156	Black-fruited spikerush
157	Bog asphodel
158	Boykin's lobelia
160	Britton's spikerush
161	Clustered beaked rush
162	Coast flatsedge
163	Cut-leaved water-milfoil
164	Cypress-swamp sedge
165	Featherfoil
166	Floating pennywort
167	Fog fruit
168	Glade spurge
169	Grass-like beaked rush
170	Knieskern's beaked rush
171	Koehn's tooth-cup
172	Lace-lip ladies'-tresses
173	Larger buttonweed
174	Lesser bladderwort
175	Long's bulrush
176	Minute duckweed
177	Mudweed
178	New Jersey rush
179	Pine Barren boneset
180	Pumpkin Ash
181	Puttyroot
182	Rare-flowering beaked rush
183	Red goosefoot
184	Robin-run-away
185	Rough cottongrass
186	Rough flatsedge
188	Sea-beach milkwort
189	Sea-side evening primrose
190	Virginia joint-vetch
191	Short-fruited rush
192	Slender water-milfoil
193	Small yellow pond lily

SPECIES ID	NAME
194	Small-headed beaked rush
195	Snowy orchid
196	Stinking fleabane
197	Stout smartweed
198	Swamp-pink
199	Thread-leaved beaked rush
200	Twisted spikerush
201	Virginia thistle
202	Walter's St. John's-wort
203	Whorled nut rush
204	Wrinkled jointgrass

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

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5.1. DETAILED DESCRIPTION: HAB_PT

The coverage HAB_PT contains the points with plant species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the PNTS_LUT table. The PNTS_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (3), and record number. ID values of zero are holes in polygons and do not contain information. In the look up table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species is MED for the HAB_PT coverages. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following HAB_PT species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
150	Bur-marigold
151	Seaside alder

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: HYDRO

The coverage HYDRO contains polygonal water and land features as well as linear features for rivers/streams that are tidally influenced.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	WATER_CODE	character
Complete Chains	LINE	character
	SOURCE_ID	integer

The LINE, SOURCE_ID, and WATER_CODE attributes are the same as in the ESI coverage. This coverage contains all annotation used in producing the atlas. The annotation features are categorized into three subclasses in order to simplify the mapping and quality control procedures: geog or geographic features, soc or socioeconomic features, and hydro or water features.

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

WATER_CODE

5.1.2.2. ATTRIBUTE DEFINITION:

Specifies a polygon as either water or land

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
L	Land
W	Water

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

LINE

5.1.2.2. ATTRIBUTE DEFINITION:

Type of geographic feature

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
B	Breakwater
F	Flat
H	Hydrography or stream features
I	Index
P	Pier
S	Shoreline

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

SOURCE_ID

5.1.2.2. ATTRIBUTE DEFINITION:

Data source for the ESI

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
0	Digital MSRC Shoreline
1	Ground Truth/Field Edit
4	Digitize from Scanned Topo
6	Digital New Jersey Shoreline

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: INDEX

The coverage INDEX contains the map polygon boundaries for each quad/map in the atlas.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	TILE-NAME	character
	TOPO-NAME	character
	SCALE	integer
	MAPANGLE	floating point
	PAGESIZE	character

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

TILE-NAME

5.1.2.2. ATTRIBUTE DEFINITION:

The TILE-NAME contains the map number according to the specified layout of the atlas. During the map production process, the value of TILE-NAME is plotted on the map product to order the maps in a coherent manner. The values for each polygon are unique and range from 1 through 64.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

TOPO-NAME

5.1.2.2. ATTRIBUTE DEFINITION:

USGS 1:24,000 topographic map name. Some polygons straddle two or more maps and all map names are included in this attribute. The date (latest/revised) of the USGS maps are also included in this field.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

ASSAWOMAN BAY, MD (1992)
ATLANTIC CITY, NJ (1972)
AVALON, NJ (1972)
BARNEGAT LIGHT, NJ (1989)
BEACH HAVEN, NJ (1972)
BEN DAVIS POINT, NJ (1972)
BENNETTS PIER, DE (1993)
BETHANY BEACH, DE (1991)
BEVERLY, PA (1973)
BOMBAY HOOK, DE (1977)
BRIDGEPORT, NJ (1994)
BRIDGETON, NJ (1973)
BRIGANTINE INLET, NJ (1972)
BRISTOL, PA (1981)
CAMDEN, NJ (1994)
CANTON, NJ (1977)
CAPE HENLOPEN, DE (1984)
CAPE MAY, NJ (1972)
CEDARVILLE, NJ (1977)
DELAWARE CITY, DE (1993)
DIVIDING CREEK, NJ (1986)
FAIRMOUNT, DE (1991)
FORKED RIVER, NJ (1989)
FORTESCUE, NJ (1972)
FRANKFORD, DE (1991)
FRANKFORD, PA (1983)
FREDERICA, DE (1993)
HEISLERVILLE, NJ (1977)
LANSDOWN, PA (1994)
LEWES, DE (1991)
LITTLE CREEK, DE (1993)
LONG BEACH NE, NJ (1972)
MARCUS HOOK, PA (1993)
MARMORA, NJ (1972)
MILLSBORO, DE (1992)
MILLVILLE, NJ (1986)
MILTON, DE (1992); MISPILLION RIVER, DE (1993)
NEW GRETNA, NJ (1977)
NEWARK EAST, DE (1993)

OCEAN CITY, NJ (1972)
OCEANVILLE, NJ (1972)
PENNS GROVE, NJ (1993)
PHILADELPHIA, PA (1973)
PORT ELIZABETH, NJ (1977)
PORT NIRRIS, NJ (1972)
REHOBOTH BEACH, DE (1991)
RIO GRANDE, NJ (1972)
SEA ISLE CITY, NJ (1972)
SEASIDE PARK, NJ (1989)
SHILOH, NJ (1993)
SHIP BOTTOM, NJ (1972)
SMYRNA, DE (1993)
STONE HARBOR, NJ (1972)
TAYLOR'S BRIDGE, DE (1993)
TOMS RIVER, NJ (1989)
TRENTON EAST, NJ (1981)
TRENTON WEST, NJ (1981)
TUCKERTON, NJ (1972)
WATER; DELAWARE BAY
WEST CREEK, NJ (1972)
WILDWOOD, NJ (1972)
WILMINGTON SOUTH, DE (1993)
WOODBURY, NJ (1990)

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

SCALE

5.1.2.2. ATTRIBUTE DEFINITION:

SCALE contains the value of the denominator of the scale at which the map is plotted in the final map product.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

48,000
58,000

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

MAPANGLE

5.1.2.2. ATTRIBUTE DEFINITION:

MAPANGLE contains a value to rotate the final map product so that it is situated straight up and down.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

-0.603
-0.601
-0.599
-0.524
-0.522
-0.520
-0.518
-0.439
-0.438
-0.437
-0.358
-0.357
-0.277
-0.202
-0.200
-0.199
-0.121
-0.119
-0.117
-0.050
-0.040
0.000
0.039
0.040
0.116
0.117
0.118

0.120
0.121
0.195
0.196
0.197
0.199
0.200
0.201
0.276
0.277
0.278
0.280
0.281
0.357
0.358
0.361
0.439

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:
Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:
nominal

5.1.2.1. ATTRIBUTE LABEL:
PAGESIZE

5.1.2.2. ATTRIBUTE DEFINITION:
PAGESIZE contains the value of the width and height of the map in the final map product.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:
Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

11,17

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:
Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:
nominal

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5.1. DETAILED DESCRIPTION: MGT

The coverage MGT contains the managed lands polygons for human-use data.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	SOCECON	character
	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

SOCECON

5.1.2.2. ATTRIBUTE DEFINITION:

Identifies polygons with a socioeconomic, or human-use, feature. This attribute allows direct access to the type of feature instead of linking to the more detailed SOC_DATA table.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
P	State Park
W R	Wildlife Refuge

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the SOC_LUT table. SOC_LUT is a lookup table with two attributes: ID and HUNUM. ID is a concatenation of atlas number (12), element number (11), and record number. HUNUM is the link to the socioeconomic data found in the SOC_DATA table. The table

SOC_DATA contains the feature type, the name of the feature, the contact agency or person, the telephone number, the geographic source number, and the attribute source number. The HUNUM value is distinguished from the biology RARNUM values by an "H" preceding the unique number.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: M_MAMMAL

The coverage M_MAMMAL contains the polygons with marine mammal species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (4), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be RARE, OCCASIONAL, and COMMON. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following M_MAMMAL species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
2	Harbor seal
6	Harbor porpoise
11	Fin whale
12	Minke whale
13	Humpback whale
14	Gray seal
17	Bottlenose dolphin
18	Pygmy sperm whale
19	Shortfin pilot whale
27	Sei whale
46	Risso's dolphin
48	Sperm whale
60	Common dolphin
61	Stenellid dolphin
81	Northern right whale
82	Dwarf sperm whale
83	Long-finned pilot whale
84	Hooded seal
85	Harp seal
86	Atlantic white-sided dolphin
87	Rough-toothed dolphin
88	Bryde's whale

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: NESTS

The coverage NESTS contains entity points representing nesting sites.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the PNTS_LUT table. The PNTS_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (5), and record number. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and contains either LOW, MED, HIGH, or the numbers of birds, nests, or pairs. Nests and pairs are identified in the item. Blank concentration means it was not surveyed in 1995. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following NESTS species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
38	Herring gull
45	Common tern
54	Great blue heron
77	Osprey
86	Least tern
87	Little blue heron
88	Great egret
89	Snowy egret
90	Black-crowned night heron
91	Glossy ibis
92	Great black-backed gull
93	Cattle egret
94	Tricolored heron
97	Green-backed heron
98	Laughing gull
120	Yellow-crowned night heron
133	Black skimmer
138	Forster's tern
1,004	Wading birds

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: REPTILES

The coverage REPTILES contains the polygons with reptile species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the POLYS_LUT table. The POLYS_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (6), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be RARE, OCCASIONAL, or COMMON. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following REPTILES species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
2	Green sea turtle
4	Kemp's ridley sea turtle
6	Atlantic loggerhead sea turtle
7	Diamondback terrapin

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: SHELLFSH

The coverage SHELLFSH contains the polygons with shellfish species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (6), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be LOW, MEDIUM, or HIGH. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following SHELLFSH species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
42	Northern quahog (hard clam)
43	American oyster (eastern)
44	Horseshoe crab
45	Northern lobster
46	Channeled whelk
47	Knobbed whelk
49	Blue crab
73	Squid

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: SOCECON

The coverage SOCECON contains the entity points and complete chains for the human-use data.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
Complete Chains	SOCECON	character
Entity Points	SOCECON	character
	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

SOCECON

5.1.2.2. ATTRIBUTE DEFINITION:

Identifies a line or point with a socioeconomic, or human-use, feature. This attribute allows direct access to the type of feature instead of linking to the more detailed SOC_DATA table.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
A2	Access
A	Airport
AS	Archaeological Site
BR	Boat Ramp
CG	Coast Guard
F	Ferry
HS	Historical Site
M	Marina
RF	Recreational Fishing
SB	State Border
WI	Water Intake

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the SOC_LUT table. SOC_LUT is a lookup table with two attributes: ID and HUNUM. ID is a concatenation of atlas number (12), element number (10), and record number. HUNUM is the link to the socioeconomic data found in the SOC_DATA table. The table SOC_DATA contains the feature type, the name of the feature, the contact agency or person, the telephone number, the geographic source number, and the attribute source number. The HUNUM value is distinguished from the biology RARNUM values by an "H" preceding the unique number.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: T_MAMMAL

The coverage T_MAMMAL contains the polygons with terrestrial mammal species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
GT-Polygons	ID	integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ID

5.1.2.2. ATTRIBUTE DEFINITION:

A unique identifier which links to the POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (12), element number (9), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be LOW, MEDIUM, or HIGH. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following T_MAMMAL species are found in the Delaware, New Jersey, Pennsylvania ESI atlas:

SPECIES ID	NAME
8	River otter
37	Muskrat

SPECIES ID	NAME
38	Mink
44	Northern raccoon

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

6.0. DISTRIBUTION INFORMATION

6.1. DISTRIBUTOR

6.1.1. CONTACT PERSON PRIMARY

6.1.1.1. CONTACT PERSON:

Jill Petersen

6.1.1.2. CONTACT ORGANIZATION:

NOAA

6.1.4. CONTACT ADDRESS

6.1.4.1. ADDRESS TYPE:

Physical Address

6.1.4.2. ADDRESS:

7600 Sand Point Way N.E., Bin C15700

6.1.4.3. CITY:

Seattle

6.1.4.4. STATE OR PROVINCE:

W A

6.1.4.5. POSTAL CODE:

98115

6.1.5. CONTACT VOICE TELEPHONE:

(206) 526-6944

6.1.7. CONTACT FACSIMILE TELEPHONE:

(206) 526-6329

6.2. RESOURCE DESCRIPTION:

ESI Atlas for Delaware, New Jersey, Pennsylvania

6.3. DISTRIBUTION LIABILITY:

Although this data has been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer input peripherals, or when the physical medium is delivered in damaged condition.

6.5. CUSTOM ORDER PROCESS

Contact NOAA for distribution options (see 6.1.1.).

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7.0. METADATA REFERENCE INFORMATION

7.1. METADATA DATE:
19961025

7.2. METADATA REVIEW DATE:
19961025

7.4. METADATA CONTACT

7.4.1. CONTACT PERSON PRIMARY

7.4.1.1. CONTACT PERSON:
Jill Petersen

7.4.1.2. CONTACT ORGANIZATION:
NOAA HMRAD

7.4.3. CONTACT POSITION:
GIS Manager

7.4.4. CONTACT ADDRESS

7.4.4.1. ADDRESS TYPE:
Physical Address

7.4.4.2. ADDRESS:
7600 Sand Point Way, N.E., Bin C15700

7.4.4.3. CITY:
Seattle

7.4.4.4. STATE OR PROVINCE:
Washington

7.4.4.5. POSTAL CODE:
98115

7.4.5. CONTACT VOICE TELEPHONE:
(206) 526-6944

7.4.7. CONTACT FACSIMILE TELEPHONE:
(206) 526-6329

7.4.8. CONTACT ELECTRONIC MAIL ADDRESS:
jill_petersen@hazmat.noaa.gov.us

7.5. METADATA STANDARD NAME:
Content Standards for Digital Geospatial Metadata

7.6. METADATA STANDARD VERSION:
19940608

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